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Title: Placed-based activities at LANL

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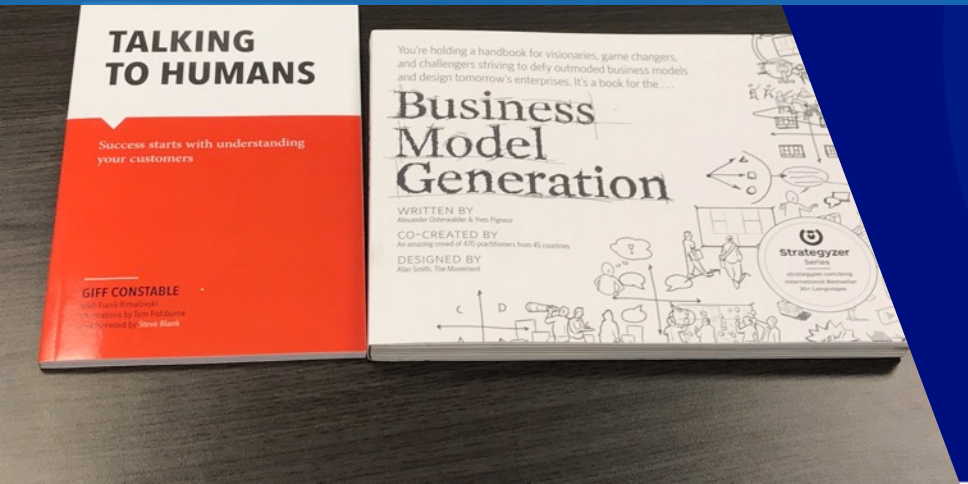
Los Alamos
NATIONAL LABORATORY

Placed-based activities at LANL

Local / Regional Entrepreneurial Engagement



DisrupTECH

Scientists and engineers take the first steps to learn about the commercial potential of their research to identify industry potential, discover market application, and encourage an entrepreneurial mindset.

Participants give an investor-type presentation to local and regional investors and the community in the summer.

Successful Outcomes

- Market opportunity identified
- Communication & presentation development
- Networking & engagement
- Partnerships

13 Staff & postdocs in current 2021 program

59 Staff & postdocs have participated to date

58 NM small businesses have received tech assistance from 11 participants

13 Postdocs have transitioned to the Postdoc Entrepreneur Fellowship

4 CRADAs executed

4 NFEs (strategic sponsored projects with non- federal entities) executed

UC·LANL Postdoc Entrepreneur Fellowship

UNIVERSITY OF CALIFORNIA

A **6-month fellowship** that **trains 3-4 postdocs** to **discover pathways** for their **research** and **technology development** that can **transition into product** and **application solutions** within a **validated market opportunity**.

Successful Outcomes

- Product Design
- Business Models
- Market Analysis
- Financial Feasibility
- Commercialization Roadmap

13 Postdocs have participated in Fellowship

$13M Follow-up funding for further tech development

4 Strategic Market Outlooks

1 CRADA in negotiation

1 Bacterial pathogen sensor prototype being locally produced for field trials

1 Covid-19 clinical trial with largest hospital in NM

IMPACT R&D
Teaching an Innovative Mindset

A cohort of LANL staff participated in the first INVENT (Innovation and Entrepreneurship) Certificate offered by Texas A&M University. The certificate program provides training in modern innovation and entrepreneurship techniques to help graduates develop an innovative mindset.

1st Cohort completed

28 Staff members participated

5 Weapons engineering Mission Foundation Projects

2 LDRD Mission Foundation Projects

Successful Outcomes

Fundamentals in designing technical projects to enhance innovation

Multidisciplinary teams with funded Laboratory R&D projects

Modern lean innovation techniques tailored for applied science & engineering projects

TECHNOLOGY RESEARCH COLLABORATIVE (TRC)

The TRC is operated by the New Mexico Economic Development Department and consists of representatives from major research institutions and the high tech private sector that promotes the commercialization of technologies born in New Mexico.

Successful Outcomes

- Increase high-paying jobs
- Diversify the New Mexico economy
- Serve as mentors to science & tech businesses
- Assist businesses with SBIR grants

5 year Science & Technology Plan for the State of New Mexico

INNOVATE NEW MEXICO®

Discover The State of Innovation

Utilizes the TRC network of leading technology-transfer organizations in the state as the "front door" to:

- accelerate technology commercialization
- support job creation,
- contribute to economic growth and an innovation economy

through the creation and development of new companies.

Regional Engagement Challenge

Sponsorships for new innovative mechanisms and approaches to support partners explore and implement new methods of ecosystem development and increase technology commercialization.

Successful Outcomes

- Encourage entrepreneurs to start new businesses
- Create alternative job opportunities
- Attract businesses & capital to the region

- **15** Applications submitted in first call for proposals
- **25** Companies received in-depth business assistance
- **26** Mentors recruited within funded proposals
- **4** Companies received STTR funding from supported training class
- **2** Studies completed assessing NM investments & manufacturing

Technical Assistance Programs

NMSBA

Los Alamos National Laboratory
Sandia National Laboratories

Provides New Mexico small businesses addressing technical challenges access to unique expertise & capabilities of Los Alamos & Sandia national labs to:

- seek at no cost assistance from lab staff to solve specific technical challenges;
- receive support in the form of lab hours up to $40K in assistance for businesses in rural counties & $20K for those in urban counties.

2020 Successful Outcomes

$2.1 M
of technical assistance provided

125
Small businesses assisted

59
Businesses are located in northern NM

47%
Companies located in rural areas

2020 Company Industry

- **44%** Manufacturing
- **23%** Professional, Scientific, & Technical
- **11%** Other Services
- **10%** Agricultural & Natural Resources
- **3%** Education Services & Health Care
- **3%** Oil & Gas, Utilities, Mining
- **1%** Real Estate, Finance, Insurance
- **1%** Retail & Wholesale Trade

TRGR
TECHNOLOGY READINESS GROSS RECEIPTS

Los Alamos NATIONAL LABORATORY

Sandia National Laboratories

Technology Readiness Gross Receipts (TRGR) Tax Credit Initiative is a three-year pilot program to assist NM companies that license a laboratory technology or engage in a research partnership (CRADA) in maturating their technologies into to produce high value products and services to grow the technology-based economy.

2020 Successful Outcomes

UbiQD
UBIQUITOUS QUANTUM DOTS

Raised: $9M
Employees: 20

Testing safe, cost-effective, & reliable quantum dot technology to apply to next generation greenhouses & solar windows

PAJARITO POWDER
FUEL CELL CATALYSTS

Raised: $4M
Employees: 15

Advancing electro-catalyst materials for hydrogen cells & electrolyzers free of precious metals

New Mexico LEEP
the future. faster.

Los Alamos COMMERCE AND DEVELOPMENT CORPORATION

Los Alamos NATIONAL LABORATORY

Lab Embedded Entrepreneur Program supports **external innovators to advance their technology** into a **first product** and **build a company in New Mexico that addresses national security challenges** in the **areas of:**

- Advanced Materials
- AI & Advanced Computing
- Biotech-nology
- Space Systems

Successful Outcomes

Accelerate emerging technologies & products crucial to national security & global economic competitiveness

Strengthen regional commercial technology base for NM research labs & growing high tech community

Create new venues for economic growth, jobs & entrepreneurs in New Mexico

Supported with EDA grant, Triad royalties, & Appendix N funds

Applications are open & close May 21

Up to $400K to jumpstart a venture

World-class national lab collaboration

"Scale-up" training curriculum

Experienced network of mentors & business resources

First cohort onboards November 2021

TEAM Manufacturing Fund

A no-interest loan fund of up to $20,000 available to technology (creators) and manufacturing companies. The fund supports growth-oriented companies in northern NM who are on track to add jobs, grow revenues, and attract additional funding/investment.

$367K Professional, Scientific, & Technical

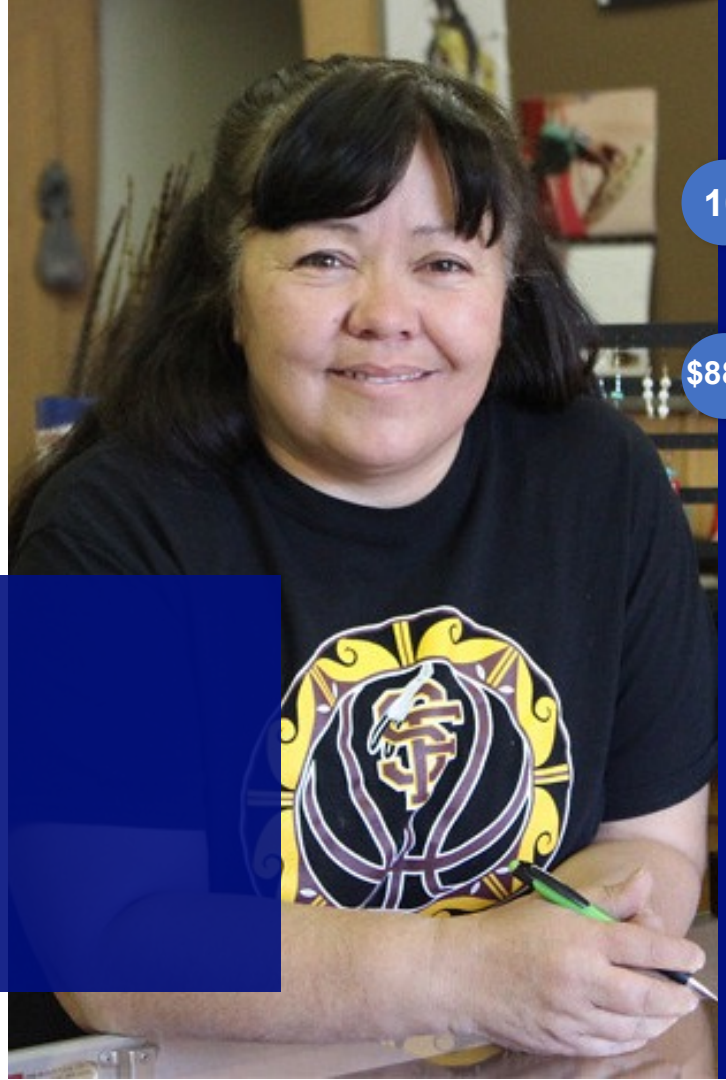
24 Jobs created & retained

2020 Successful Outcomes

- Developing a supplier ecosystem
- Creating and retaining jobs
- Business retention and expansion

Tribal Economic Diversity Fund

Grants up to $8,000 to companies owned by a federally recognized Indian tribe or business for critical technical services that contribute to increased revenues and employment for the company. Companies must be headquartered in northern New Mexico and a member of 1 of 10 eligible pueblos.



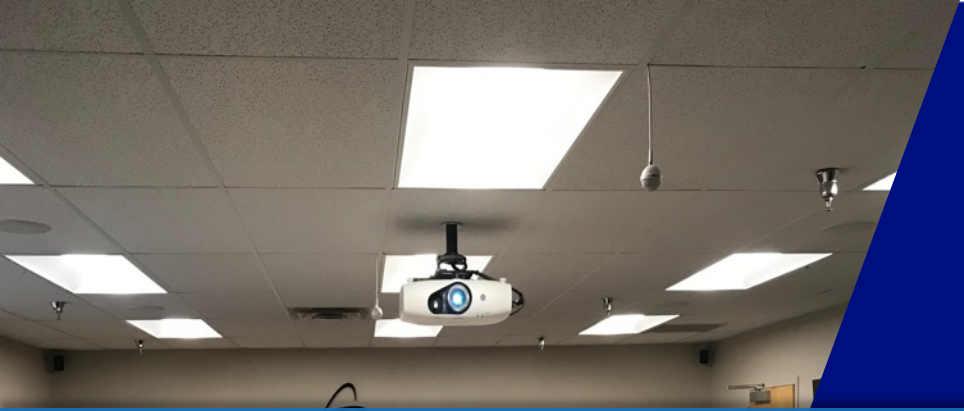
16 Native businesses supported

$88K Total funds distributed since fiscal year 2019

2020 Successful Outcomes

Strengthening regional native small businesses

Building a Native supplier ecosystem



Metrics

DisrupTECH

Program Type:	**Innovator Training**
Funding per Year:	**$19.5K**
Start Date:	**January 2014**
Funding to Date:	**$136,500**
Sponsor:	**Appendix N Technology Commercialization Program**
Partner:	**Brainard & Tafoya** (Contractor)
Status:	**Cohort 7 in Session**

Description:

Assists 12 postdocs & technical staff over 6 months to:

- explore the commercial potential of their research;
- identify private sector interest;
- discover market applications;
- encourage an entrepreneurial mindset.

Recent Impact:

13
Staff & postdocs in current 2021 program

59
Staff & postdocs have participated to date

58
NM small businesses have received tech assistance from 11 participants

4
CRADAs executed

13
Postdocs have transitioned to the Postdoc Entrepreneur Fellowship

4
NFEs (strategic sponsored projects with non-federal entities) executed

UC-LANL Postdoc Entrepreneur Fellowship

Program Type:	**Innovator Training**
Funding per Year:	**$400K**
Start Date:	**October 2017**
Funding to Date:	**$1.4M**
Sponsor:	**University of California**
Partner:	**University of California**
Status:	**Finishing Cohort 4** (14 postdocs in total trained)

Description:

Provides training to 3-4 postdocs over 6 months to:

- define customer validated problems;
- investigate market opportunities;
- address competition;
- develop product solutions;
- build comprehensive tech roadmaps;
- select business models.

Recent Impact:

$13M+
Follow-up funding for further tech development

Covid-19 Probe
Used by CDC & State of New Mexico

Covid-19 Clinical Trial
With largest hospital in New Mexico

Local Prototype Manufacturing
Sensor for bacterial select agent pathogens

6 Tech Assist projects
with New Mexico small businesses

NM Angels Workshop
Assess startup potential of Cohort 4 projects

IMPACT R&D: teaching an innovation mindset

Program Type:	**Innovator training and R&D project acceleration**
Funding per Year:	**$65K + staff time**
Start Date:	**2020**
Funding to Date:	**$125K**
Sponsor:	**PPO/EMI**
Partner:	**Texas A&M**
Status:	**First cohort completed**

Description:

An innovation mindset training certificate that included:

- Fundamentals in designing technical projects to enhance innovation;
- Multidisciplinary teams with funded Laboratory R&D projects;
- Modern lean innovation techniques tailored for applied science & engineering projects.

Recent Impact:

28 Staff members gained new skills in entrepreneur-ship and innovation

6 Divisions represented within several collaborative teams

5 Weapons Engineering **+2** LDRD Mission Foundations Projects

Regional Economic Challenge

Program Type:	**Regional Partnership**
Funding per Year:	**$40K-$50K**
Start Date:	**October 17, 2020**
Funding to Date:	**$45K**
Sponsor:	**Appendix N Technology Commercialization Program**
Partner:	**Varies each year**(Contractor)
Status:	**First year of projects completed**

Description:

Funding for new innovative mechanisms and approaches are used to fund partners that explore and implement new methods of ecosystem development and increase technology commercialization to:

- stimulate new business startups;
- create alternative job opportunities;
- attract businesses and capital to the region.

Recent Impact:

15 Applications in first call for proposals

25 Companies received in-depth business assistance

2 Studies completed assessing NM investments & manufacturing

26 Mentors recruited within funded proposals

4 Companies received STTR funding from supported training class

Technology Research Collaborative (TRC) & Innovate New Mexico®

Program Type:	**Regional Partnership**
Funding per Year:	
Start Date:	**2016**
Funding to Date:	
Sponsor:	
Partner:	**New Mexico Economic Devt Dept**
Status:	

Description:

TRC is made up of representatives from the major research institutions & high tech private sector to:

- Serve as mentors to science & technology businesses in the state;
- Assist businesses apply for Small Business Innovation Research (SBIR) matching grants;
- Promote NM technology commercialization within New Mexico;
- Increase high-paying jobs;
- Diversify the economy.

Innovate New Mexico® utilizes the TRC network of leading technology-transfer organizations in the state as the “front-door” to:

- accelerate technology commercialization;
- support job creation;
- contribute to economic growth and innovation economy through the creation and development of new companies.

Recent Impact:

15
Los Alamos scientists have presented their technology as commercialization opportunities

NM Small Business Assistance (NMSBA) Program

Program Type:	**Technical Assistance**
Funding per Year:	**Up to $2.4M** (per NM Laboratory)
Start Date:	**2007** (Los Alamos started)
Funding to Date:	**$28.9M**
Sponsor:	**State of New Mexico**
Partner:	**Sandia National Laboratories**
Status:	**Year 15 in progress**

Description:

Provides New Mexico small businesses addressing technical challenges access to unique expertise & capabilities of Los Alamos & Sandia national labs to:

- seek at no cost assistance from lab staff to solve specific technical challenges;
- receive support in the form of lab hours up to $40K in assistance for businesses in rural counties & $20K for those in urban counties.

2020 Impact:

$2.1 M
of technical assistance provided

125
Small businesses received tech assistance

59
Small businesses that received assistance were located in northern NM

Technology Readiness Gross Receipts (TRGR) Tax Credit Initiative

Program Type:	**Technical Assistance**
Funding per Year:	**$500K** (Year 1); **$750K** (Year 2); **$1M** (Year 3)
Start Date:	**July 2020**
Funding to Date:	**$200K**
Sponsor:	**State of New Mexico Tax Credit**
Partner:	**Sandia, State of New Mexico**
Status:	**First year of projects started**

Description:

3 year pilot program to:

- assist New Mexico companies that license a laboratory technology or engage in a research partnership (CRADA) in advancing their technologies into high-value products & services;
- grow the NM technology-based economy with NM created technology.

Funding Recipients:

UbiQD
UBIQUITOUS QUANTUM DOTS

Testing safe, cost- effective, & reliable quantum dot technology to apply to next generation greenhouses & solar windows.

Raised: $9M
Employees: 20

PAJARITO POWDER
FUEL CELL CATALYSTS

Advancing electro-catalyst materials for hydrogen cells & electrolyzers free of precious metals

Raised: $4M
Employees: 15

New Mexico Lab Embedded Entrepreneur Program

Program Type:	**Innovator Training & Technical Assistance**
Funding per Year:	**$700K**
Start Date:	**2021**
Funding to Date:	**$700K**
Sponsors:	**Los Alamos National Lab** (Appendix N) **Triad** (Royalties), **Economic Development Agency**
Partners:	**Los Alamos Commerce & Development Corp., Sandia**
Status:	**Receiving applications for 1st Cohort**

Description:

Supports visionary, external innovators to transition their deeptech into products that solve complex challenges in national security. The 2 year program includes:

- a stipend up to $100K each year;
- Los Alamos technical assistance through a supported CRADA ($100K per year);
- experienced network of mentors and business resources;
- startup training tailored for deeptech innovators.

Recent Progress:

$600K EDA Award
to support operations

Strategic Leadership Council
of investors & experts throughout US formed

April 6
Application process opened

4 Areas of Innovation
- Advanced materials
- AI / Advanced computing
- Space systems
- Biotech

November 2021
Onboard first two Fellows

Sandia
Plans to join the program in 2022

Community Tech Assist Program

Program Type:	**Technical Assistance**
Funding per Year:	
Start Date:	
Funding to Date:	
Sponsor:	
Partner:	
Status:	

Description:

Recent Impact:

ASM Mentor/ Protégé Program

Program Type:

Funding per Year:

Start Date:

Funding to Date:

Sponsor:

Partner:

Status:

Description:

Recent Impact: